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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,070	06/29/2005	Atsuko Kosuda	124508	6057
25944 7590 01/08/2007 OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER THOMAS, ERIC W	
			ART UNIT	PAPER NUMBER
			2831	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/541,070

Applicant(s)

KOSUDA ET AL.

Examiner

Eric Thomas

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) -  
Paper No(s)/Mail Date 2/20/06 6/10/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## INTRODUCTION

The examiner acknowledges, as recommended in the MPEP, the applicant's submission of the amendment dated 10/11/06. At this point, claims 3, 5, 9 have been amended. Claims 1-12 are pending in the instant application.

The indicated allowability of claims 3, 5, 9, and 12 is withdrawn in view of the newly discovered reference(s) to JP 63-218159. Rejections based on the newly cited reference(s) follow.

## DETAILED ACTION

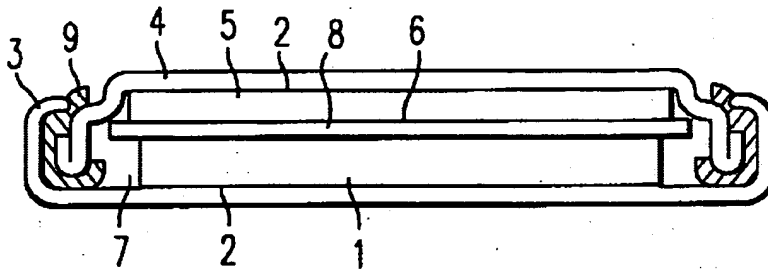
### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-2, 4, 6, 8, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suhara et al. (US 5,953,204) in view of JP 2001-146410 ('410).



Suhara et al. disclose in fig. 1, an electrochemical capacitor comprising: an anode and cathode opposing each other; an insulating separator (8) disposed between the anode and cathode; an electrolytic solution (col. 2 lines 65-67 and col. 3 lines 1-32); and a casing accommodating the anode, cathode, separator, and electrolytic solution in a closed state; wherein the anode contains an activated carbon powder (see col. 3 lines 32-67, and col. 4 lines 1-37) having an electronic conductivity as a constituent material; and wherein the cathode comprises a fibrous carbon material (col. 5 lines 60-65) having an electronic conductivity as a constituent material.

Suhara et al. disclose the claimed invention except for the activated carbon powder is substantially spherical.

'410 teaches the use of an improved activated carbon powder having a spherical shape used in electrochemical capacitors.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the spherical activated carbon powder of '410 in the electrode of Suhara et al., since such a modification would improve the pack density (increased pore volume) and improve the discharge capacity.

Regarding claim 2, '410 teach that the spherical carbon material has an aspect ratio of 1 to 1.5.

Regarding claim 4, Suhara et al. disclose the separator comprises an insulating porous body; wherein the anode includes a porous layer containing the substantially spherical carbon material; wherein the cathode includes a porous layer containing the fibrous carbon material; and wherein the electrolytic solution is at least partly contained in the anode, cathode, and separator.

Regarding claim 6, Suhara et al. disclose the content of activated carbon powder contained in the anode is 80 mass % based on the total mass of the porous layer (see examples).

Regarding claim 8, Suhara et al. disclose the fibrous carbon material in the porous layer contained in the cathode is 90 mass percent (see examples).

Regarding claim 10, Suhara et al. disclose the claimed invention except for the ratio of void volume in the porous body to a porous body volume of the porous body contained in the separator is 50% to 70%. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the separator so that the ratio of void volume in the porous body to a porous body volume of the porous body contained in the separator is 50% to 70%, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 11, Suhara et al. disclose the electrolytic solution is an electrolyte solution using an organic solvent (see col. 3 lines 10-32).

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4. Claims 1, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suhara et al. (US 5,953,204) in view of Sonobe et al. (US 6,258,337).

Suhara et al. disclose in fig. 1, an electrochemical capacitor comprising: an anode and cathode opposing each other; an insulating separator (8) disposed between the anode and cathode; an electrolytic solution (col. 2 lines 65-67 and col. 3 lines 1-32); and a casing accommodating the anode, cathode, separator, and electrolytic solution in a closed state; wherein the anode contains an activated carbon powder (see col. 3 lines 32-67, and col. 4 lines 1-37) having an electronic conductivity as a constituent material; and wherein the cathode comprises a fibrous carbon material (col. 5 lines 60-65) having an electronic conductivity as a constituent material.

Suhara et al. disclose the claimed invention except for the activated carbon powder is substantially spherical.

Sonobe et al. teach the use of an improved activated carbon powder having a spherical shape used in electrochemical capacitors.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the spherical activated carbon powder of Sonobe et al. in the electrode of Suhara et al., since such a modification would improve the pack density (increased pore volume) and improve the discharge capacity.

Regarding claim 7, Sonobe et al. teach that the carbon powder has a specific surface area of 800-2000 m<sup>2</sup>/g.

5. Claims 1-2, 4, 6, 8, 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-211821 ('821) in view of JP 2001-146410 ('410).

'821 discloses an electrochemical capacitor comprising: an anode and cathode opposing each other; an insulating separator disposed between the anode and cathode; an electrolytic solution; and a casing accommodating the anode, cathode, separator, and electrolytic solution in a closed state; wherein the anode contains an activated carbon powder having an electronic conductivity as a constituent material; and wherein the cathode comprises a fibrous carbon material having an electronic conductivity as a constituent material.

'821 discloses the claimed invention except for the activated carbon powder is substantially spherical.

'410 teaches the use of an improved activated carbon powder having a spherical shape used in electrochemical capacitors.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the spherical activated carbon powder of '410 in the electrode of '821, since such a modification would improve the pack density (increased pore volume) and improve the discharge capacity.

Regarding claim 2, '410 teach that the spherical carbon material has an aspect ratio of 1 to 1.5.

Regarding claim 4, the modified '821 discloses the separator comprises an insulating porous body; wherein the anode includes a porous layer containing the substantially spherical carbon material; wherein the cathode includes a porous layer containing the fibrous carbon material; and wherein the electrolytic solution is at least partly contained in the anode, cathode, and separator.

Regarding claim 6, the modified '821 discloses the claimed invention except for the content of activated carbon powder contained in the anode is from 75 to 90 mass % based on the total mass of the porous layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the content of activated carbon powder contained in the anode from 75 to 90 mass % based on the total mass of the porous layer, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 8, the modified '821 discloses the claimed invention except for the fibrous carbon material in the porous layer contained in the cathode is from 75 to 90 mass %.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the fibrous carbon material contained in the cathode from 75 to 90 mass % based on the total mass of the porous layer, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 9, '821 discloses an electrochemical capacitor comprising: an anode and cathode opposing each other; an insulating separator disposed between the anode and cathode; an electrolytic solution; and a casing accommodating the anode, cathode, separator, and electrolytic solution in a closed state; wherein the anode

contains an activated carbon powder having an electronic conductivity as a constituent material; and wherein the cathode comprises a fibrous carbon material having an electronic conductivity as a constituent material.

'821 discloses the claimed invention except for the activated carbon powder is substantially spherical.

'410 teaches the use of an improved activated carbon powder having a spherical shape used in electrochemical capacitors.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the spherical activated carbon powder of '410 in the electrode of '821, since such a modification would improve the pack density (increased pore volume) and improve the discharge capacity.

'821 discloses the claimed invention except for the fibrous carbon material having a specific surface area of 1000 to 3000 m<sup>2</sup>/g.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the electrode with a fibrous carbon material having a specific surface area of 1000 to 3000 m<sup>2</sup>/g, since discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 10, the modified '821 discloses the claimed invention except for the ratio of void volume in the porous body to a porous body volume of the porous body contained in the separator is 50% to 70%. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the separator so that the ratio of void volume in the porous body to a porous body volume of the porous body

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contained in the separator is 50% to 70%, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 11, the modified '821 disclose the electrolytic solution is an electrolyte solution using an organic solvent.

6. Claims 1, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-211821 ('821) in view of Sonobe et al. (US 6,258,337).

'821 discloses an electrochemical capacitor comprising: an anode and cathode opposing each other; an insulating separator disposed between the anode and cathode; an electrolytic solution; and a casing accommodating the anode, cathode, separator, and electrolytic solution in a closed state; wherein the anode contains an activated carbon powder having an electronic conductivity as a constituent material; and wherein the cathode comprises a fibrous carbon material having an electronic conductivity as a constituent material.

'821 disclose the claimed invention except for the activated carbon powder is substantially spherical.

Sonobe et al. teach the use of an improved activated carbon powder having a spherical shape used in electrochemical capacitors.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the spherical activated carbon powder of Sonobe et al. in the electrode of '821, since such a modification would improve the pack density (increased pore volume) and improve the discharge capacity.

Regarding claim 7, Sonobe et al. teach that the carbon powder has a specific surface area of 800-2000 m<sup>2</sup>/g.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-211821 ('821) and JP 2001-146410 ('410) as applied to claim 1 above, and further in view of 63-218159 ('159).

'821 discloses the claimed invention except for the fibrous carbon material has an aspect ratio of 2 to 8.

'159 teach the use of an improved carbon fiber having an aspect ratio of 3 to 100 used in the capacitor art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the capacitor of '821 using the fibrous carbon of '159, since such a modification would form an electrode having high conductivity.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-211821 ('821) in view of JP 2001-146410 ('410) and Hosokawa et al. (JP 2003-045378).

'821 discloses an electrochemical capacitor comprising: an anode and cathode opposing each other; an insulating separator disposed between the anode and cathode; an electrolytic solution; and a casing accommodating the anode, cathode, separator, and electrolytic solution in a closed state; wherein the anode contains an activated carbon powder having an electronic conductivity as a constituent material; and wherein the cathode comprises a fibrous carbon material having an electronic conductivity as a constituent material.

'821 discloses the claimed invention except for the activated carbon powder is substantially spherical; and each anode, cathode, and separator has a planar form; wherein the casing is formed by using at least a pair of composite package films opposing each other; and wherein the composite package film comprises at least an innermost layer made of a synthetic resin in contact with the electrolytic solution and a metal layer disposed on the upper side of the innermost layer.

Hosokawa et al. teach an improved housing for electric double layer capacitors wherein the anode, cathode, and separator has a planar form, wherein the casing is formed by using at least a pair of composite package films opposing each other; and wherein the composite package film comprises at least an innermost layer made of a synthetic resin in contact with the electrolytic solution and a metal layer disposed on the upper side of the innermost layer.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the capacitor elements of '821 in the housing of Hosokawa et al., since such a modification would provide the capacitor with a lightweight-reinforced housing.

'410 teaches the use of an improved activated carbon powder having a spherical shape used in electrochemical capacitors.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the spherical activated carbon powder of '410 in the electrode of '821, since such a modification would improve the pack density (increased pore volume) and improve the discharge capacity.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-211821 ('821) in view of JP 2001-146410 ('410) and JP 63-218159 ('159).

'821 discloses an electrochemical capacitor comprising: an anode and cathode opposing each other; an insulating separator disposed between the anode and cathode; an electrolytic solution; and a casing accommodating the anode, cathode, separator, and electrolytic solution in a closed state; wherein the anode contains an activated carbon powder having an electronic conductivity as a constituent material; and wherein the cathode comprises a fibrous carbon material having an electronic conductivity as a constituent material.

'821 discloses the claimed invention except for the activated carbon powder is substantially spherical having an aspect ratio of 1 to 1.5; and the fibrous carbon material has an aspect ratio of 2 to 8.

'410 teaches the use of an improved activated carbon powder having a spherical shape used in electrochemical capacitors.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the spherical activated carbon powder of '410 in the electrode of '821, since such a modification would improve the pack density (increased pore volume) and improve the discharge capacity.

'159 teach the use of an improved carbon fiber having an aspect ratio of 3 to 100 used in the capacitor art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the capacitor of '821 using the fibrous

carbon of '159, since such a modification would form an electrode having high conductivity.

### ***Response to Arguments***

10. Applicant's arguments filed 10/11/06 have been fully considered but they are not persuasive.

11. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the anode and cathode are determined according to their polarities at the time of discharging) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Thomas whose telephone number is 571-272-1985. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ewt

 12-22-06

**ERIC W. THOMAS**  
**PRIMARY EXAMINER**